

## 2017 Quality Outcomes Report



# Our Reach & Our Roots

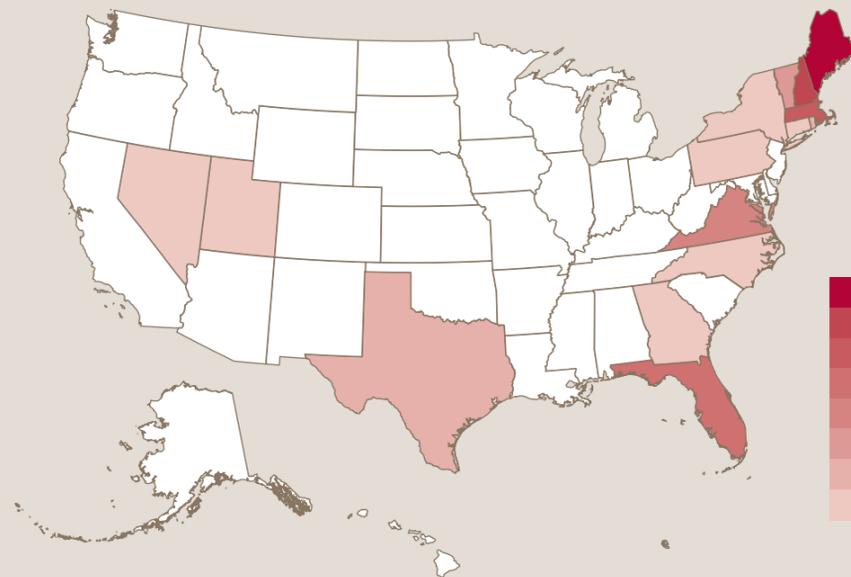


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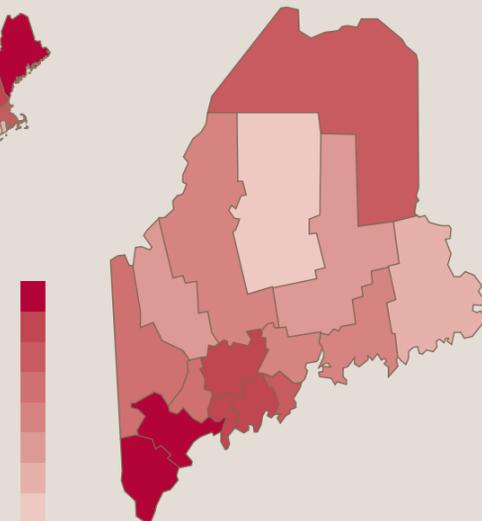
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Patients by State  
2016



Patients by Maine County  
2016



**Maine Medical**  
**PARTNERS**  
Orthopedics & Sports Medicine

*A department of Maine Medical Center*

  
**Maine Medical Center**  
MaineHealth

*centered around you*

Northern New England's  
leading hip, knee, and  
shoulder experts are  
right here in Portland

# Introduction

I am proud to present the 2017 Maine Medical Partners – Orthopedics & Sports Medicine Quality Outcomes Report for joint replacement. This report represents the efforts of many dedicated caregivers, who have spent countless hours attempting to improve the results of joint replacement surgery for our patients. We believe that it is important to make our results available to all who are interested, in order to educate prospective patients and caregivers about the general expectations and the likely outcomes relating to joint replacement surgery. When possible, we benchmark our results against national and regional data to allow comparison. This information allows us to track trends and attempt to continually improve our results as well as the experience for patients. We

recognize that collecting this data can be at times a bit burdensome to our patients and we would like to thank them for their efforts. When patients complete our outcomes questionnaires, it allows us to improve our processes, track our results, and present this data to future patients. At MMP and Maine Medical Center, we are committed to providing the best possible care for our patients, and we are happy to compare our results to other organizations. Our surgeons are dedicated to continuous improvement of their skills and the outcomes of surgery. Our nurses and staff support the goals of improving the patient experience and getting our patients back to pain free enjoyment of life. The data presented here suggests our patients receive the benefits of these efforts.

Donald P. Endrizzi, M.D.  
Chief of Orthopedics, Maine Medical Center



Pictured (left to right): Peter Guay, D.O., George Babikian, M.D., Donald Endrizzi, M.D., Brian McGrory, M.D., Adam Rana, M.D., Michael Becker, M.D.

## 2016 JOINT REPLACEMENTS AT A GLANCE

1,975 Joint replacement procedures performed

89% Discharged home

67 years Average age of our joint replacement patients

53% Female

6 Board Certified Orthopedic Surgeons

4 Operating rooms dedicated to orthopedics

# Surgical Case Volume

In 2016, Maine Medical Partners – Orthopedics & Sports Medicine performed 1,975 joint replacement procedures, a 15% increase from 2015.

“Patients managed at hospitals, and by surgeons, with greater volumes of total knee replacement have lower risks of perioperative adverse events following primary total knee replacement”

(Katz et al. 2004).

“Patients treated at hospitals, and by surgeons, with higher annual caseloads of primary and revision total hip replacement had lower rates of mortality and of selected complications”

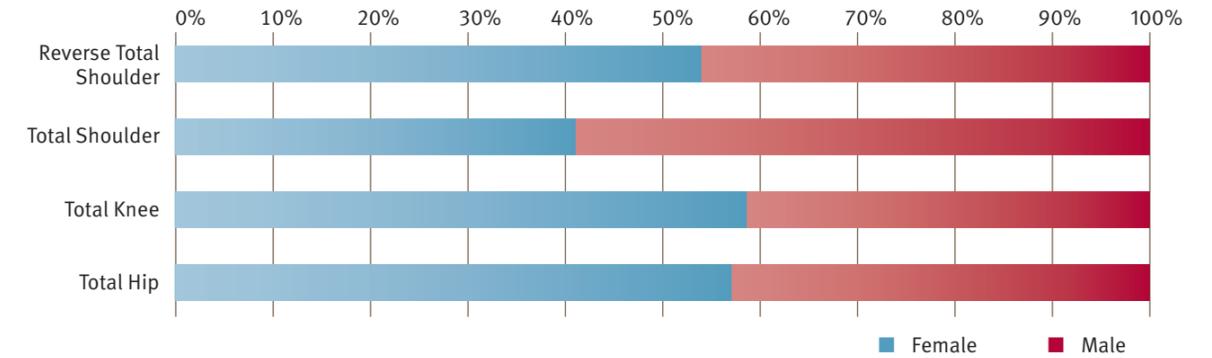
(Katz et al. 2001).

## 2016 PROCEDURAL VOLUME

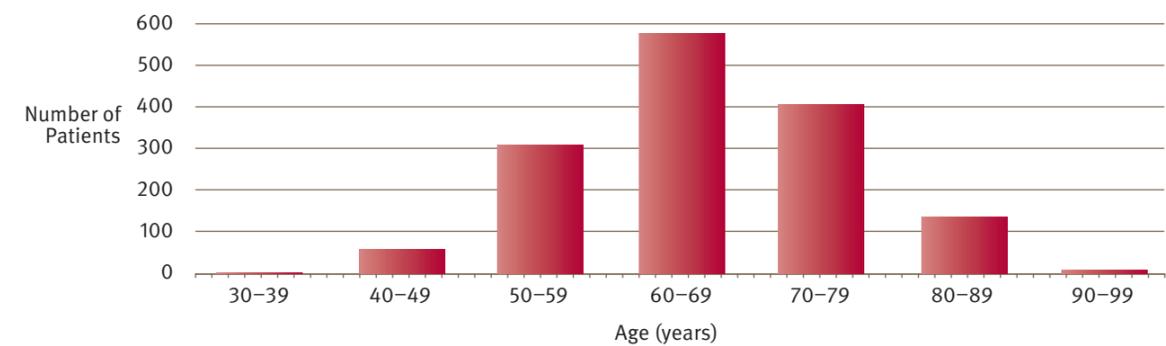
<b>All Joint Replacement Procedures</b>	<b>1,975</b>
<b>Hip Replacement (THR)</b>	<b>1,051</b>
Primary	927
<i>Anterolateral Minimally Invasive</i>	881
<i>Posterior</i>	12
<i>Bilateral</i>	34
Revision	110
<i>Total Revision</i>	87
<i>Conversion</i>	23
Fracture	14
<i>Total Hip Replacement</i>	8
<i>Partial Hip Replacement</i>	6
<b>Knee Replacement (TKR)</b>	<b>774</b>
Primary	710
Partial Knee Replacement	39
Revision	25
<i>Bilateral *reflected in total above</i>	5
<b>Shoulder Replacement (TSR)</b>	<b>150</b>
Anatomic	51
Primary Reverse	98
Partial	1
Revision TSA <i>*reflected in total above</i>	5

## JOINT REPLACEMENT PATIENT CHARACTERISTICS

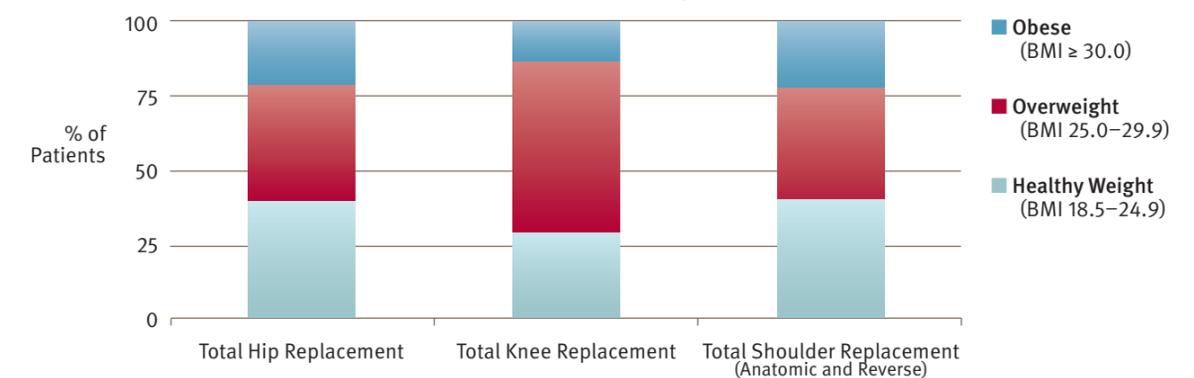
### Gender Distribution of 2016 Joint Replacement Patients



### Age Distribution of 2016 Joint Replacement Patients



### BMI (kg/m<sup>2</sup>) Distribution of 2016 Joint Replacement Patients



\* According to CDC Guidelines  
[https://www.cdc.gov/healthyweight/assessing/bmi/adult\\_bmi/](https://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/)  
Accessed on March 17, 2017

# Surgical Statistics

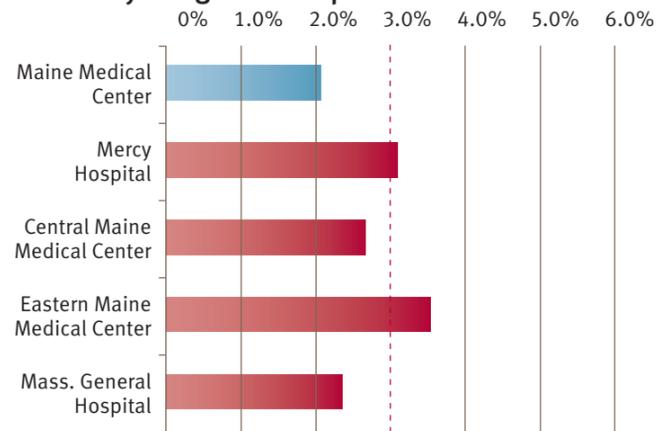


The public now has access to unprecedented data around the quality of joint replacement procedures.

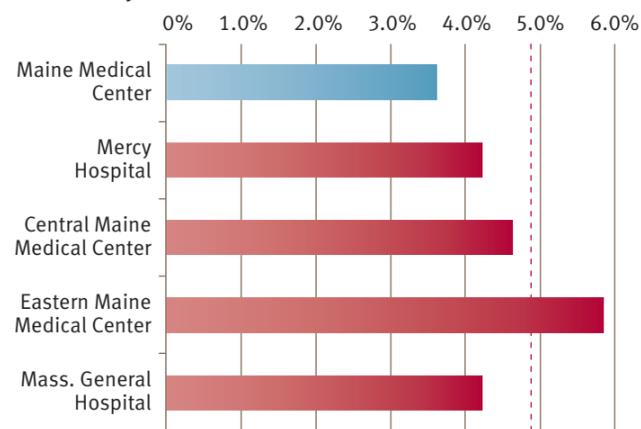
Hospital Outcome of Care measures, which are readily available on the Medicare website, are significant because people who elect to have these surgeries typically research the hospital and physician to learn who has the best outcomes. Also, Medicare has recently begun to adjust hospital reimbursement rates for hip and knee replacement surgeries based on these measures, as it currently does for a number of other procedures.

## HIP AND KNEE REPLACEMENT PATIENTS

### 30-Day Surgical Complications



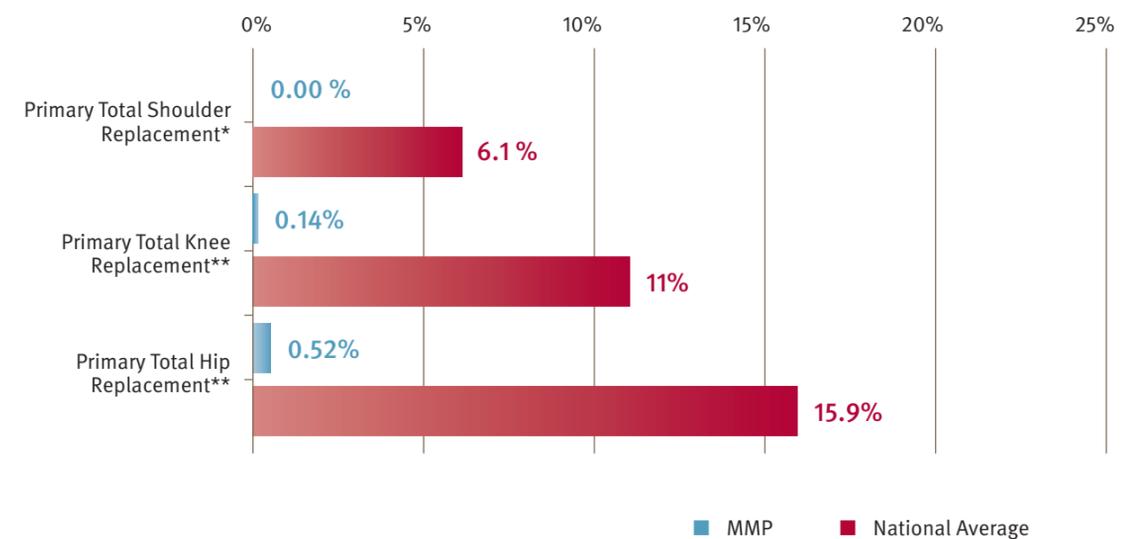
### 30-Day Readmission Rates



<http://www.medicare.gov/hospitalcompare/search.html> Accessed: 03/17/2017

■ MMC 30-day Rate   
 ■ 30-day Rate   
 - - - U.S. National Average  
← Lower percentages are better

### 2016 Transfusion Rate



\* Kandil A, Griffin JW, Novicoff WM, Brockmeier SF. Blood transfusion after total shoulder arthroplasty: Which patients are at high risk? Int J Shoulder Surg. 2016 Apr-Jun; 10(2):72-7.

\*\* Menendez ME, Lu N, Huybrechts KF, Ring D, Barnes L, Ladha K, Bateman BT. Variation in use of blood transfusion in primary total hip and knee arthroplasties. J Arthroplasty. Vol 31(2) Dec 2016:2757-63.

### Transfusion Rates

Blood transfusion rates during our joint replacement surgeries are significantly lower than the national average. While blood loss is always a risk with any major surgery, the surgeons at MMP – Orthopedics & Sports Medicine take every measure to minimize this risk through meticulous surgical techniques, and adhere to strict post-operative vital sign and laboratory value monitoring.

# Length of Stay

A priority of the teams at MMP – Orthopedics & Sports Medicine, and Maine Medical Center is to return our patients to their homes as quickly as possible, safely and comfortably. Patients with shorter lengths of stay are able to enjoy the familiar surroundings of home and are less likely to develop a hospital-acquired complication.

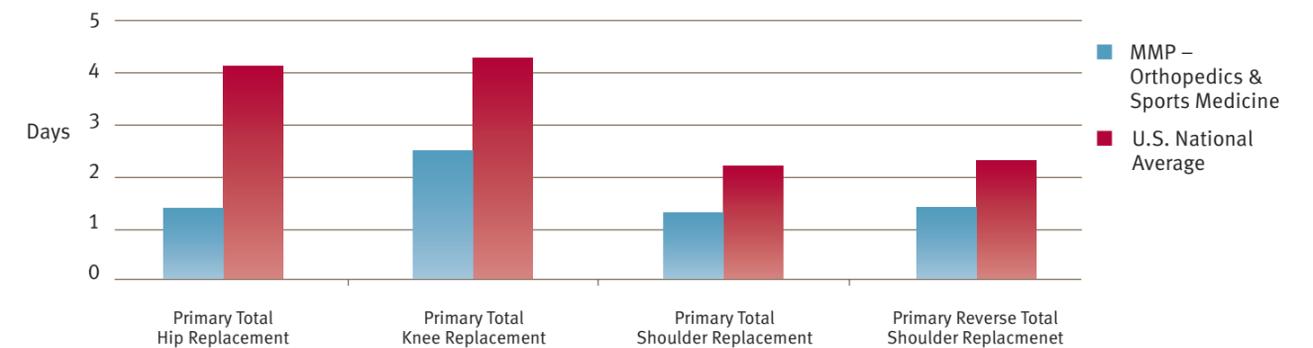
Additionally, a short stay helps to reduce overall healthcare spending. Our strict adherence to established best-practice pathways for hip, knee and shoulder replacement surgery allows our patients to experience significantly shorter lengths of stay compared to national averages.



## 2016 AVERAGE LENGTH OF STAY

Total Joint Replacement	Days
<b>Hip Replacement</b>	
Anterolateral Minimally Invasive	1.2
Bilateral	2.3
<b>Knee Replacement</b>	
Primary	2.2
Revision	2.3
<b>Shoulder Replacement</b>	
Anatomic	1.3
Primary Reverse	1.4

## 2016 LENGTH OF STAY AVERAGES



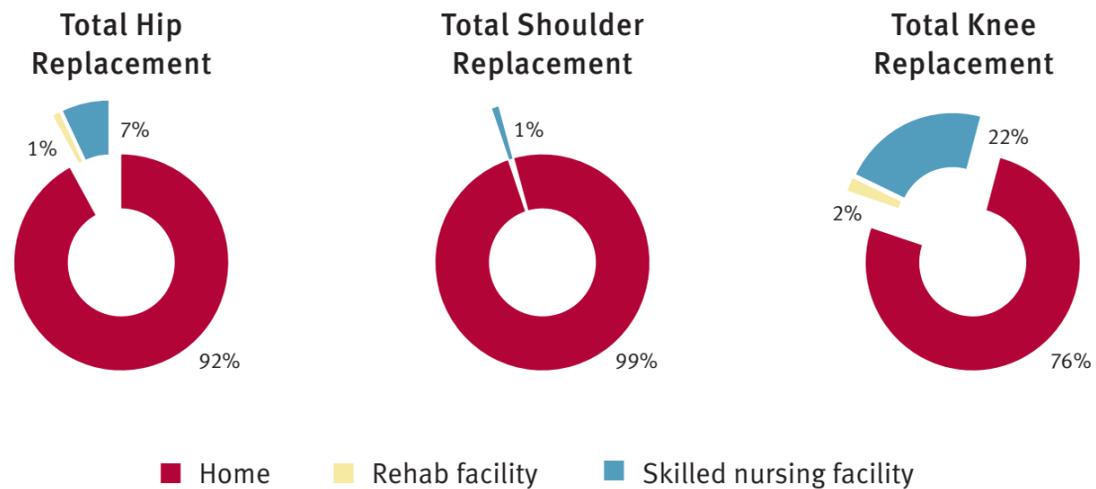
Source: Health Care utilization project – US government publication, 2010; <http://hcup-us.ahrq.gov/reports/projections/2012-03.pdf>

# Discharge Disposition

Discharge disposition is an important factor in joint replacement surgery. Getting patients back to their families and loved ones is a priority for Maine Medical Partners – Orthopedics & Sports Medicine because our team understands that patients recover better in the comfort of their own home.

Patients discharged home have the option of visiting nurses, in-home physical therapy and in-home occupational therapy visits. Maine Medical Partners – Orthopedics & Sports Medicine has established this commitment to getting patients home when possible and our commitment shows in the data.

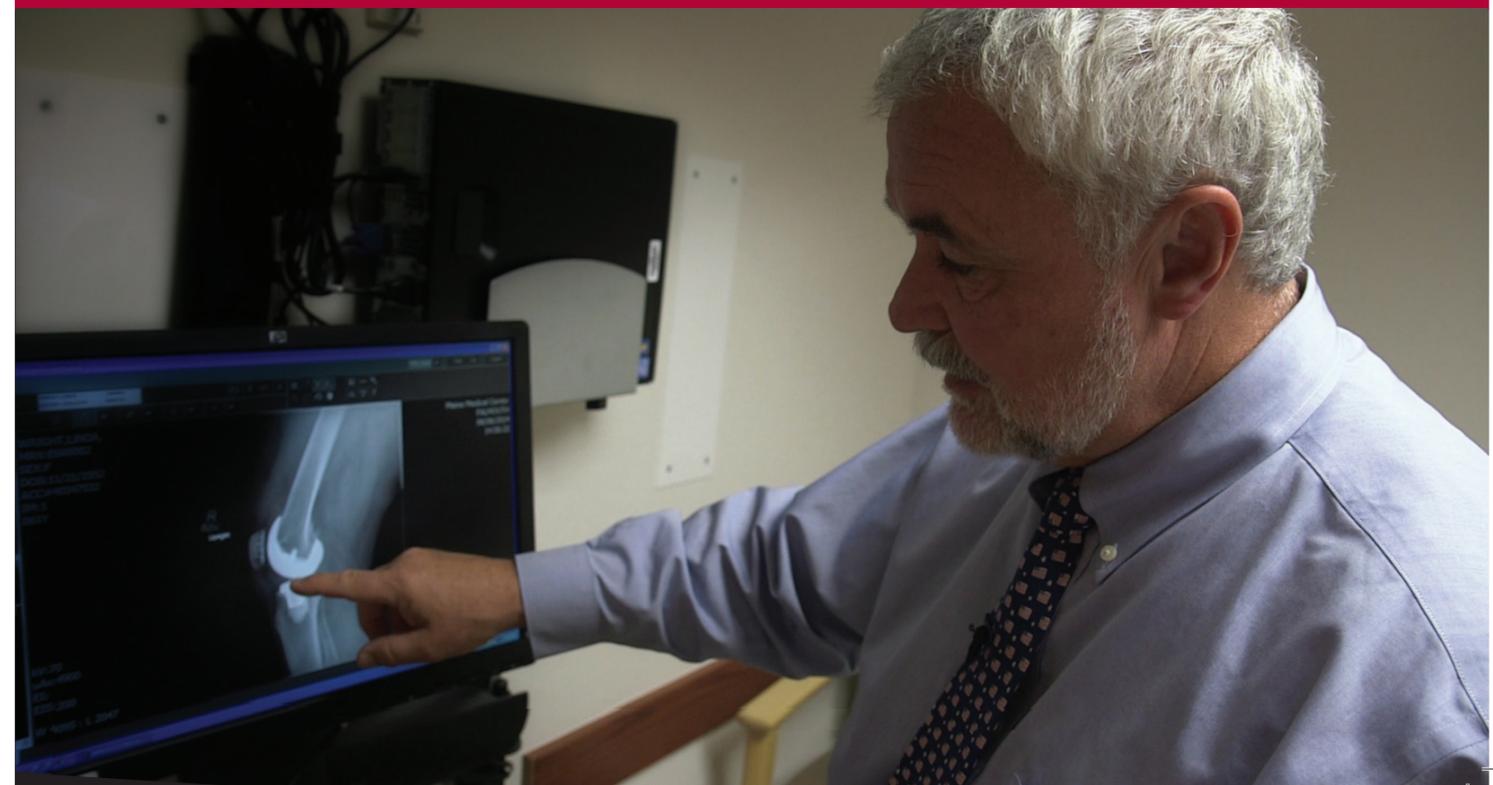
## DISCHARGE LOCATION



# Knowledge



Ask our expert providers for up-to-the-minute data and information. They are the best at what they do and are sought-after for their knowledge.



# Patient Education Experience

“All of the instructors were invested in their topics, and obviously enjoy what they are doing.”

Patient Testimonial  
Total Hip Replacement Class

## Educational Offerings

- Suggestions for preparing your home and yourself for surgery
- Details about the day of surgery
- Advances in pain management and anesthesia
- Discharge planning for home care and rehabilitation care
- Answers to your questions about return to normal activities

We continue to grow our educational services to meet the needs of our population. Classes are offered in multiple locations, and via a number of different platforms, to supplement the already successful Patient & Family Education classes that are held at the MMC Joint Replacement Center. Approximately 65% of patients and their families participate in our educational programming. Research has shown the benefits of pre-operative information for patients can include; decreased hospital length of stay, less demand for pain relief after surgery, and increased patient satisfaction.

Janet Dyroff, R.N., M.S., CHES  
Joint Replacement Center Services Coordinator  
Maine Medical Center

# Pain Management



Our philosophy regarding pain management is to take a multimodal approach that addresses each step of the pain pathway to minimize every patient’s post-operative pain. To quote the famous French Philosopher Jean Jacques Rousseau, “Happiest is the person who suffers the least pain.” Our dedication to meticulous soft tissue handling at the time of surgery, utilizing less invasive approaches to the hip, knee and shoulder, targeted local anesthetics and appropriate post-operative pain medications have all shown significant benefits with regards to our patient’s post-operative experience.

Studies report that superior post-operative pain management results in decreased length of stay at the hospital, earlier mobility in the post-operative setting, improved recovery of function such as range of motion in total knee replacements, decreased narcotic requirements, decreased gastrointestinal complications such as constipation, decreased genitourinary complications, and decreased cardiopulmonary complications such as pneumonias. Pain is a poorly understood, complex phenomenon most likely controlled by neural, cellular, and humoral

mechanisms. The pain pathway is initiated by surgical trauma that sends signals to the peripheral nervous system which are then carried to the central nervous system. Our approach for addressing pain targets each step in this pathway.

Surgical trauma in total hip replacement surgery is minimized by performing a muscle sparing minimally invasive approach. Resultant inflammation is then addressed with anti-inflammatory medications, also known as NSAIDs (e.g. Celebrex). In addition, cryotherapy or ice packs are applied to the operative extremity to reduce swelling. Local anesthetics injected at the time of surgery offer pain relief to the peripheral nervous system, while Tylenol and opiates (which are stronger narcotic pain medications) offer decreased pain by acting at the level of the central nervous system.

Our goal and commitment to our patients is to continually improve our peri-operative pain management techniques by way of reduced trauma at the time of surgery, a multimodal pain control program and pre-operative patient education.

# Excellence, Patient Outcomes, and Research

Our joint replacement patients have a dedicated pre-op and post-op space, operating rooms, and an inpatient unit.



As performance and patient outcomes are being reported more frequently, patients can see that there is a “bell curve” or distribution of success, with only small numbers of centers consistently offering patients excellent results. We think that our team’s dedication to the patient, innovative spirit, medical knowledge, technical skill, and above all, desire and ability to improve, allow us to be one of the top joint replacement programs in the country.

The desire and ability to change for the better is wholly dependent on understanding and reacting to our results in real time. For almost 20 years, data has been collected and examined for outcomes evaluation for a large portion of our joint replacement

and fracture patients. Maine Medical Partners - Orthopedics & Sports Medicine next initiated the MMC and MaineHealth Joint Replacement Registry, followed by participation as an early supporter of the American Joint Replacement Registry. Additionally, our joint replacement surgeons collected not only surgical data, but also patient-reported outcomes. Patient-based questionnaires monitor activity, overall health, and joint-specific pain, stiffness and function. They are collected before surgery and after surgery at appropriate intervals for the patient’s life. Long term goals of our observation process include identifying variables that are associated with excellent results; assessing changes that we make to

improve the patient experience, and offering patients objective measures of outcome to compare to other programs. Recent innovations such as using mobile activity monitors have also been piloted to improve this process.

Clinically relevant and actionable findings are the motivation force for our research program. Our staff members collaborate with researchers, statisticians, clinicians and students from Maine Medical Center

Research Institute, Tufts University School of Medicine, and regional and national research groups. We strongly believe that the combination of objective data about joint replacement surgery outcomes in conjunction with the desire and resources to improve and innovate through research allows us to offer our patients a state-of-the-art, safe, effective and durable joint reconstruction.

Brian McGrory, M.D.  
Orthopedic Surgeon, Maine Medical Partners –  
Orthopedics & Sports Medicine

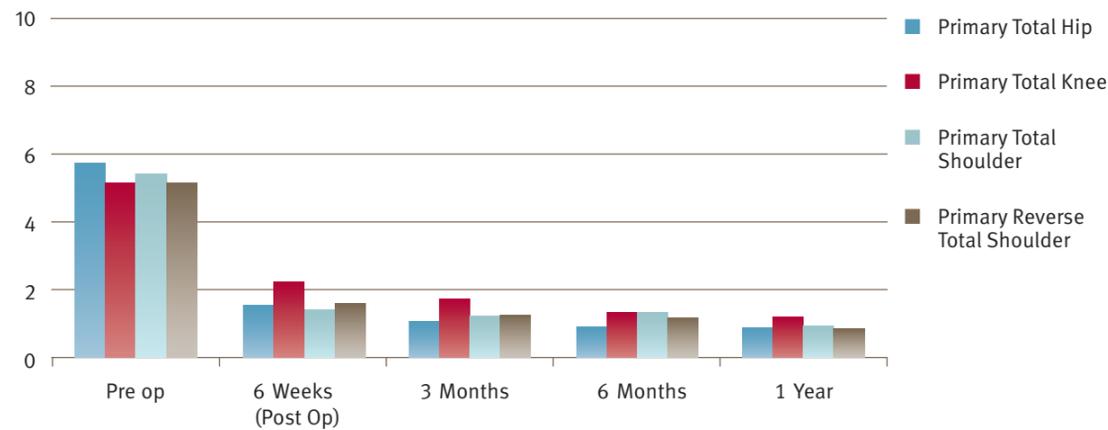


# Outcomes from the Patient Perspective

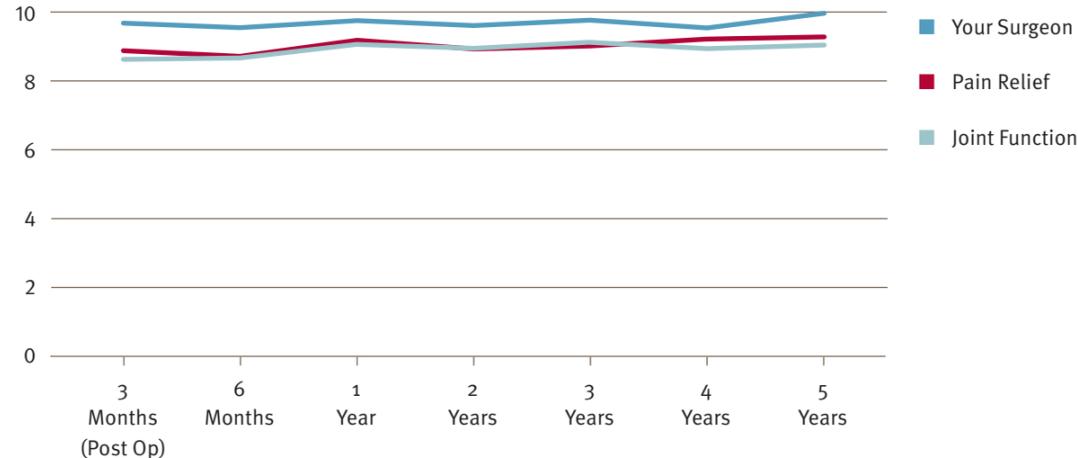
By continually monitoring patient reported outcomes we're ensuring the best care for our patients.

Before joint replacement surgery takes place, we ask our patients to fill out a survey with questions about joint pain, function and activity levels. After surgery we ask them to update us during their recovery. We do this because the best way to know how successful a surgery has been is to ask the patient. Here we report our patients' responses to those questions to illustrate how joint replacement is improving their lives.

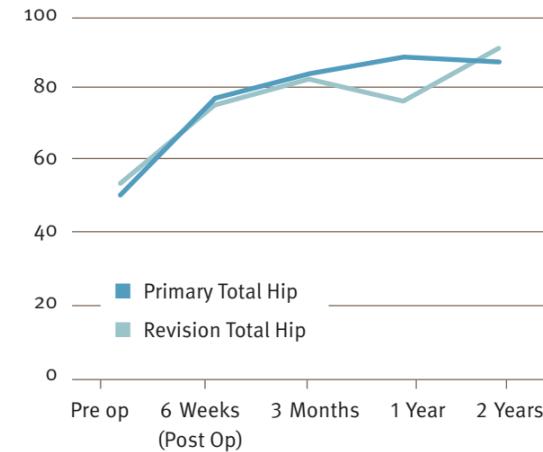
How Do You Rate Your Pain Today? (0-10 scale)



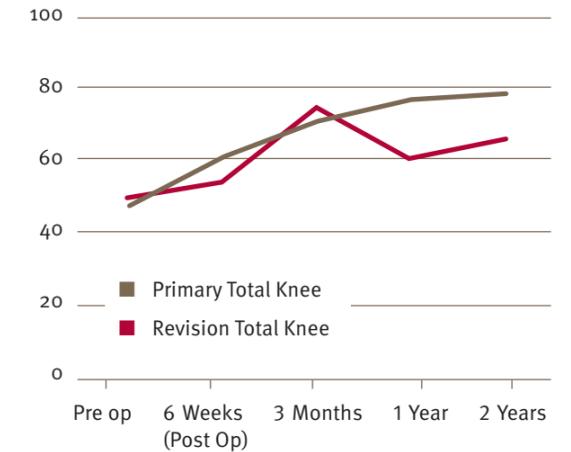
How Satisfied Are You With (0-10 scale)



Hip Osteoarthritis Outcome Score (0-100)



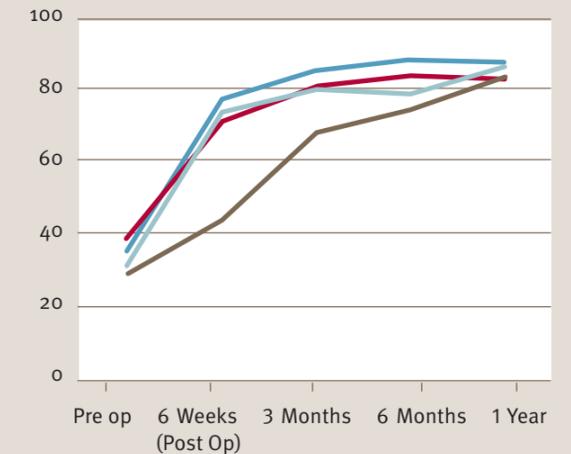
Knee Osteoarthritis Outcome Score (0-100)



What Level of Activity Can You Perform? (UCLA)



How Do You Rate Your Joint Function Today (0-100%) (SANE)



# Innovations In Joint Replacement Surgery

A knee replacement has traditionally been associated with a hospital stay averaging three to four days in the hospital following surgery. In addition, a subsequent stay in a rehabilitation facility for additional recovery is not uncommon. Our team has worked to innovate our processes to allow for the delivery of a knee replacement procedure in new ways.

## Next-Day Knee

The next-day knee program is a natural evolution of the minimally invasive anterolateral hip replacement that was introduced to Maine Medical Center in March of 2006. The success of the total hip replacement program in terms of quality of outcome, speed of recovery, and ability to send patients home the day following surgery provided a sound platform for application into knee replacement. In 2015, myself and a team of anesthesiologists, physician assistants, and physical therapists traveled to various sites across the U.S., reviewing different knee replacement programs. We concluded that making subtle variations to the existing program would allow knee replacement patients to be safely discharged home the day after surgery at Maine Medical Center.

The next-day knee was introduced in early 2016 for partial knee replacement patients with excellent success

to date. Ninety-five percent (95%) of partial knee patients have undergone the new one day length of stay, with discharge home.

Adam Rana, M.D.  
Orthopedic Surgeon



## Simultaneous Bilateral Total Hip Replacement

The ability to perform both right and left hip replacements during one surgery is a procedure we offer to our MMP – Orthopedics & Sports Medicine patients. This surgical method is referred to as “minimally impactful” due to the unprecedented successes in short length of stay, minimization of pain and restrictions, and rapid return to function with avoidance of complications. Once established, it became evident that for the right patient, doing two hip replacements in the same surgery visit was not just possible but beneficial. The right patient is one with

severe bilateral hip arthritis – a situation where if one hip were to be replaced, the remaining hip with arthritis would not be functional enough to “protect” the replaced hip.

There is no increase in the mechanical risk to the hips by having two replaced at once in this setting, and a true benefit in the speed of recovery has been observed. The bilateral hip replacement program began in 2008 and to date over 100 of the surgeries have been done. This has been accomplished with great success, with length of stays averaging 2 days, and complication rates far below average for unilateral hips across the country. We are very happy to be able to offer this service to our patients, as a function of the truly minimally impactful nature of the muscle sparing anterolateral hip replacement procedure.

George Babikian, M.D.  
Orthopedic Surgeon



# Providers

## GEORGE M. BABIKIAN, M.D.

Fellowship: AO Trauma, Chur, Switzerland  
Fellowship: Trauma and Critical Care, Buffalo  
Medical School: State University of New York at Buffalo School of Medicine  
Residency: State University of New York at Buffalo Consortium

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Fellowship: Hospital for Special Surgery  
Medical School: State University of New York at Buffalo School of Medicine  
Residency: Columbia Presbyterian Medical Center

## DONALD P. ENDRIZZI, M.D.

Fellowship: A.S.I.F. Foundation, Regional Kantonsepital, Chur, Switzerland  
Medical School: Columbia College of Physicians and Surgeons  
Residency: Columbia Presbyterian Medical Center

## PETER E. GUAY, D.O.

Medical School: University of New England College of Osteopathic Medicine  
Residency: Brighton Medical Center

## BRIAN J. MCGRORY, M.D.

Fellowship: Massachusetts General Hospital  
Medical School: Columbia College of Physicians and Surgeons  
Residency: Mayo Clinic

## ADAM J. RANA, M.D.

Fellowship: Hospital for Special Surgery  
Medical School: State University of New York Downstate Medical Center  
Residency: Boston Medical Center

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## RUPI S. GILL, PA-C

## ANGELA M. JAGOUTZ, FNP

## AMELIA KNOWLES, PA-C

## BRIGHAM R. MCKENNEY, MPAS, PA-C

## MICHELLE B. STIRLING, FNP

# Recognition



Joint Commission Gold Seal  
of Approval for both Hip and  
Knee Joint Replacement



Designated  
**BlueDistinction®**  
**Center+**  
Knee & Hip Replacement